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Delivery via FedEx

Attn: Document Control Desk,
Director Office of Nuclear Material Safety and Safeguards
U. S. Nuclear Regulatory Commission
11545 Rockville Pike,
Rockville, MD 20852

Attn: Deputy Director
Division of Decommissioning, Uranium Recovery and Waste Programs
U.S. Nuclear Regulatory Commission
11545 Rockville Pike, Mail Stop T-8F5
Rockville, MD 20852-2738

**RE: REQUEST FOR ADDITIONAL INFORMATION ON NORTH BUTTE FLOW RATE
INCREASE, CAMECO SMTITH RANCH HIGHLAND URANIUM PROJECT,
SOURCE MATERIAL LICENSE SUA-1548 (TAC NO. L00783)**

Director:

Power Resources Inc., doing business as Cameco Resources (Cameco) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) to amend Source Materials License SUA-1548 to increase the flow at the North Butte remote satellite plant from 15,140 Liters Per Minute (L/min)(4,000 gallons per minute (gpm)) to 22,710 L/min (6000 gpm). (ADAMS Accession No. ML15132A085)

Upon reviewing the submittal, NRC staff identified several items that required further clarification. A Request for Additional Information (RAI's) was sent to Cameco on January 19, 2016 so that NRC staff could complete the review of the flow increase for the North Butte remote satellite plant.

NMSSDI

Enclosed with this letter are Cameco's Responses to NRC staff's North Butte Flow Rate Increase RAI's.

If you have further questions or need additional information, please contact Mike Thomas at the Cameco Resources Casper, Wyoming office at telephone (307) 333-7665 or email Mike_Thomas@cameco.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mike Thomas', with a stylized flourish at the end.

Mike Thomas
Director-Safety, Health, Environment, and Quality

MT/mt

cc: Deputy Director, Division of Decommissioning, Uranium Recovery, and Waste Programs
Cameco Smith Ranch-Highland
Cameco-Casper, North Butte

Attachments: RAI's for the North Butte Flow Rate Increase.
LQD Annual Report Water Balance

Request for Additional Information (RAI) for the North Butte Flow Rate Increase

RAI 1

Description of Deficiency

The information provided in the amendment application does not meet the applicable requirements of 10 CFR Part 40, using review procedures in Section 3.1.2 and acceptance criteria outlined in Section 3.1 .3 of the SRP. .

Basis for Request

In the amendment request, Cameco Resources (Cameco) states that "the deep disposal well has the capacity to increase the disposal rate by 20 Gallons Per Minute (GPM) without adverse effect on the well." The U.S. Nuclear Regulatory Commission (NRC) staff also understands that Cameco is permitting additional deep disposal wells at North Butte. However, without understanding the current deep disposal well injection capacity at North Butte, the NRC staff does not have sufficient information to be able to make a reasonable assurance finding that Cameco has sufficient waste disposal capacity to meet production and restoration schedules while operating at 6,000 GPM. Additionally, the NRC staff does not have sufficient information to make a reasonable assurance finding related to future waste disposal capacity while operating at 6,000 GPM.

Formulation of RAI

Please clearly state the number of deep disposal wells currently installed at North Butte and the operational or observed capacity of each well. Additionally, please identify the number of additional deep disposal wells that Cameco is permitting for North Butte.

Cameco Response

Cameco currently operates one deep disposal well (DDW), Fed BY-2 at the North Butte Satellite Facility. A maximum disposal rate of 60 gpm is needed to meet the permitted production flowrate of 6000 gpm, assuming a one percent bleed. Well Fed BY-2 is currently permitted for an injection rate of 150 GPM at a surface pressure of 1394 psi. The last pressure fall-off test (Aug. 21, 2015) showed the well operating at an average injection rate of 42 gpm with a surface injection pressure of 861 psi, indicating the well currently operates below the permitted injection rates and pressures. Based on the current DDW operation data, Fed BY-2 has sufficient capacity to operate at the rates required to maintain a sufficient bleed at the North Butte operation.

The Wyoming Dept. of Environmental Quality, Water Quality Division (WQD) has just approved (January 20, 2016) Cameco's UIC Permit 11-468 renewal and modification application. Cameco requested and WQD has approved operation of existing Fed BY-2 and, upon approval of additional well construction conditions, operation of up to three additional proposed wells. Each of these three additional proposed wells is permitted for a maximum injection rate of 150 gpm, for a total permitted disposal rate of 600 gpm. These three additional wells do not currently exist and would be installed only if and when the need for additional disposal capacity arises.

RAI 2

Description of Deficiency

The information provided in the amendment application does not meet the applicable requirements of 10 CFR Part 40, using review procedures in Section 3.1.2 and acceptance criteria outlined in Section 3.1 .3 of the SRP.

Basis for Request

The amendment request does not address the use of reverse osmosis to reduce the amount of liquid waste that will need to be disposed of via deep well injection. Page 8 of the amendment request only discusses deep disposal well capacity. During its review, the NRC staff consulted the North Butte water balance contained in the license renewal application to confirm consistency between the approaches in the two submittals. The NRC staff observes that the North Butte water balance contained in Table 3.14 of the license renewal application is based on a 6,000 GPM flow rate. However, in Section 3.9.2 of the license renewal application Cameco estimates a maximum Reverse Osmosis (RO) rate of 935 GPM, but only discusses maintaining 600 GPM of RO capacity. Additionally, the license renewal application discusses installation of RO capacity at North Butte at initiation of operations at the remote satellite. Based on the NRC staff's review, there appears to be a deficit of RO capacity between years 5 and 15 of operation. The NRC does not have sufficient information to make a reasonable assurance finding that Cameco has sufficient disposal capacity to operate at 6,000 GPM flow rate.

Formulation of RAI

Please provide the current installed RO capacity at North Butte. Additionally, please either (1) revise the water balance to reflect the amount of RO capacity planned for North Butte or (2) adjust the water balance so it matches the planned RO capacity.

Cameco Response

Currently the North Butte Project is in production only; groundwater restoration has not yet started. The 100 gpm RO currently installed at North Butte produces low-TDS process water using wellfield bleed for reagent mixing and other uses in the satellite plant.

Cameco updates the North Butte (and SRH) water balance annually as part of the WDEQ-LOD annual report and reclamation surety estimate. During the permitting process, Cameco is required to estimate a water balance over the anticipated life of mine. However, we are required to install equipment and bond only for the next operating year, i.e. the annual surety covers an unscheduled mining shut-down scenario whereby restoration would have to be initiated within the next operating year. Based on the restoration requirements for the mine units currently in production, Cameco has included in the annual surety the cost for installing 750 gpm capacity RO and an additional disposal well. The additional capacity would not be installed until required because the equipment will deteriorate unless operated and will incur additional start-up maintenance costs if and when the equipment is eventually placed into service.

The water balance must show sufficient disposal capacity to support only current production and restoration activities. The latest LQD annual water balance will be supplied with this RAI, and an updated life-of-asset water balance will be included with the upcoming License Amendment to add the Brown Ranch property to North Butte production.

